A New Species of *Villarsia* (Menyanthaceae) from South Africa

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ABSTRACT. A second African species of *Villarsia*, *V. goldblattiana*, is described from South Africa. The genus otherwise is Australian (13 species) and southeastern Asian (1 species). *Villarsia goldblattiana* differs from *V. capensis* in its larger ovule number, glabrous seeds, longer calyx lobes, taller inflorescences, and apparent requirement of fire to induce flowering. It is known only from the southern Cape Peninsula. Both South African *Villarsia* species are tetraploid with $2n = 36$. An emended description of *V. capensis* is given, and the origin and location of its holotype and of the holotypes of the synonyms *Menyanthes ovata* L. f. and *M. capensis* Thunberg are discussed.

The only species of *Villarsia* (Menyanthaceae) currently recognized in Africa is *V. capensis* (Houttuyn) Merrill of Western Cape Province (Marais & Verdoorn, 1963; Dyer, 1975). Elsewhere, there are 13 species of the genus in Australia (Aston, 1969; Ornduff, 1990) and an additional one in southeastern Asia (Ornduff, 1994). As traditionally circumscribed, *Villarsia capensis* exhibits interpopulation variability in habitat, leaf size, and floral characters. I have suggested that further study of the South African plants may result in the recognition of more than one species (Ornduff, 1974). Recently, I examined specimens of South African *Villarsia* borrowed from BOL and NBG and concluded that a second species of *Villarsia* occurs in South Africa. I am naming it *Villarsia goldblattiana* in recognition of Peter Goldblatt's significant contributions to southern African botany, particularly the systematics and reproductive biology of the Iridaceae, and in appreciation for his considerable assistance in my study of *Villarsia* in South Africa.

Villarsia goldblattiana Ornduff, sp. nov. TYPE: South Africa. Western Cape Province: growing abundantly in shallow standing water of marsh, N of road to Olifantsbos, 1.7 mi. W of its junction with main road to Cape Point Nature Reserve, 5 Feb. 1971, *Ornduff 7099* (holotype, sheet I, NBG; isotype, sheet II, NBG). Figure 1.

Villarsiae capensi affinis sed differt in characteribus pluribus: inflorescentia 45–84 cm elata, 1.8-vel 2.5-plo longior quam folium longissimum; calycis lobi 6–14 mm longi, 2–3 mm late basi; ovaria ovulis 3–8; semina glabra.

Erect, tufted, non-stoloniferous perennial. Basal leaves erect, evergreen, with petioles 12–32 cm long; blades fleshy, oblong to ovate, 4–9 cm long, 1.5–8 cm wide, attenuate to cordate at base, entire. Inflorescence an open panicle with 16–55 flowers, 45–85 cm tall, the tallest 1.8–2.5 times the length of the longest leaves, with cauline leaves gradually reduced upward to scales. Flowers distylous, open for only one day, on pedicels 1–2 cm long. Corolla yellow, the 5 obovate lobes about twice the length of the calyx lobes, the margins fimbriate, with hairs on parts of the upper surface. Calyx lobes 5, ± lanceolate, 6–14 mm long, 2–3 mm wide at the base. Ovules 3–8 per ovary. Capsules ovoid, equaling or slightly longer than the calyx lobes. Seeds glabrous, yellow, ± orbicular, biconvex, 1.5–2 mm diam. Wet soil and marshes, Cape Peninsula. Near sea level to 600 m. Flowers October to January, reportedly after fire.

Paratypes. SOUTH AFRICA. **Western Cape Province:** "... in summo monte 'Steenberg' alt. circa 800 ped.," Dec. 1903, *L. Kensit s.n.* (BOL); Muizenberg Plateau, Nov. 1913, *E. Kensit s.n.* (BOL); Noord Hoek Mts., alt. 2000 ft., 2 Jan. 1945, *Compton 16898* (BOL, NBG); Cape Point, Patrys Vlei, 24 Nov. 1946, *Compton 18826* (NBG); Smitswinkel Flats, Cape Peninsula, 29 Oct. 1942, *Compton 14007* (NBG).

Villarsia goldblattiana has 3–8 ovules per ovary, glabrous seeds, calyx lobes that are 6–14 mm long, and inflorescences that are 45–85 cm tall and 1.8–2.5 times the length of the longest leaves. It grows from near sea level to 600 m in elevation and is known only from the southern Cape Peninsula, where it has been collected on the slopes above Noordhoek and the Steenberg plateau south to the Smitswinkel Flats in the Cape Point Nature Reserve. It is reported to flower after a fire (Fraser & McMahon, 1994; P. Salter, pers. comm. 1997). I suspect that the primary effect of fire is to increase light intensity by temporarily reducing the shading that is caused by an overstory of fynbos shrubs. I revisited the type locality of this species in early September 1998, but was unable to find any plants

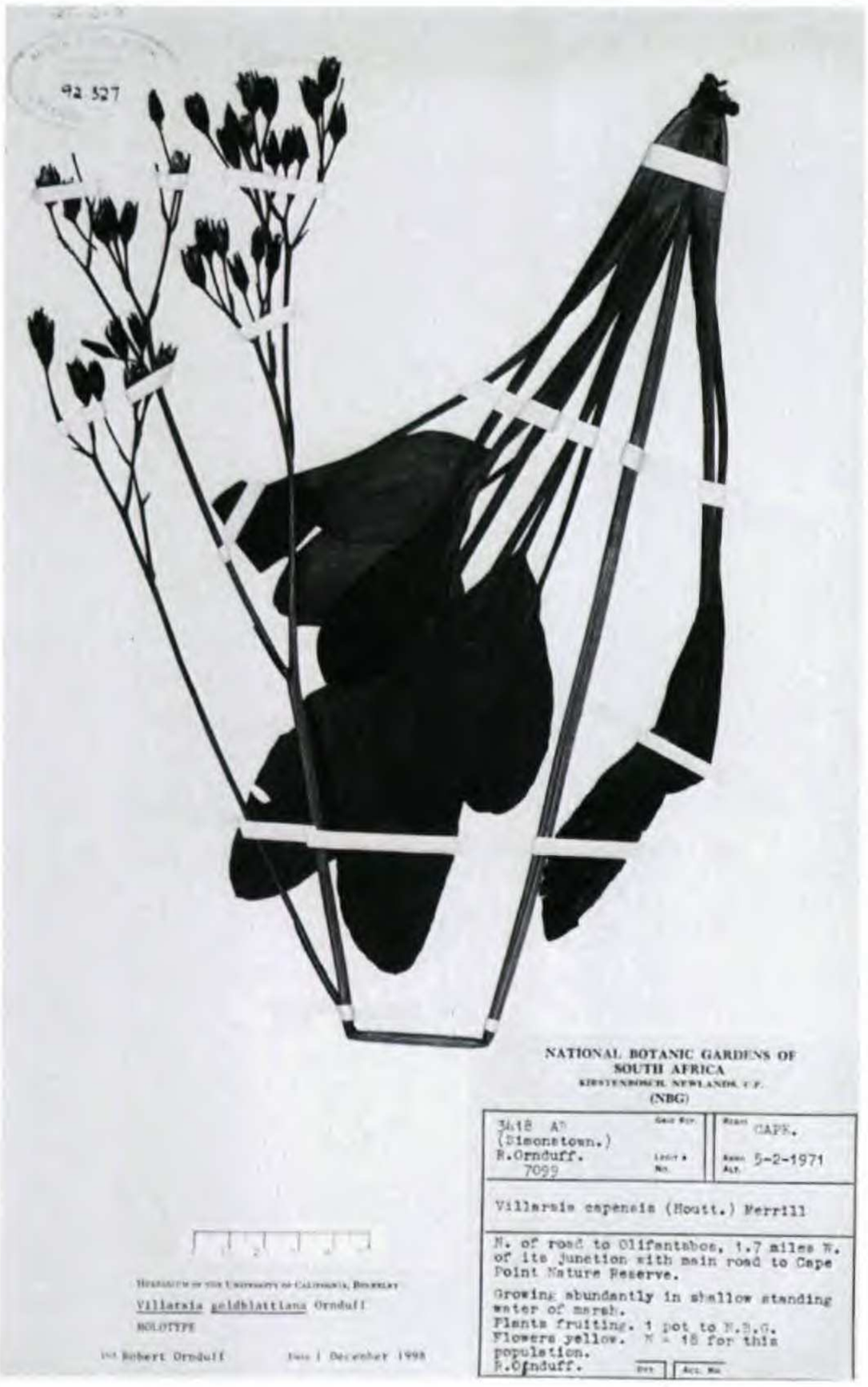

Figure 1. Holotype of *Villarsia goldblattiana*. The scale is 5 cm.

at the site. *Villarsia capensis* has 1–2 ovules per ovary, (usually) papillate seeds (illustrated in Chuang & Ornduff, 1992), calyx lobes that are 4–6 mm long, and inflorescences that are 12–45 cm tall and 0.9–2.1 times the length of the longest leaves. It grows from 200 to 1520 m in elevation and ranges from the Humansdorp region to the mountains east of Paarl and Stellenbosch and westward from there to the Cold Bokkeveld. It is also common on Table Mountain. It does not require fire to flower. It and *V. goldblattiana* are tetraploid with $n = 18$ (Ornduff, 1974). A photograph of *V. capensis* can be found in Burman and Bean (1985), and a painting of *V. goldblattiana* has been published by Fraser and McMahon (1994, as *V. capensis*).

An emended description of *V. capensis* follows:

Villarsia capensis (Houttuyn) Merrill

Erect, tufted, non-stoloniferous perennial. Basal leaves erect, evergreen, with petioles 2–25 cm long; blades fleshy, oblong to ovate, 1–9 cm long, 0.6–6.5 cm wide, rounded to cordate at base, usually with widely spaced shallow teeth or sometimes entire. Inflorescence a congested to open panicle with 5–75 flowers, 12–45 cm tall, the tallest 0.9–2.1 times the length of the longest leaves, with cauline leaves gradually reduced upward to scales. Flowers distylous, open for only one day, on pedicels 0.2–2.5 cm long. Corolla yellow, the 5 linear to narrowly obovate lobes about twice the length of the calyx lobes, the margins fimbriate, usually hairy on parts of the upper surface. Calyx lobes 5, ± lanceolate, 4–6 mm long, 1.5–2.5 mm wide at the base. Ovules 1–2 per ovary. Capsules ovoid, equaling or slightly longer than the calyx lobes. Seeds usually papillate, yellow or brown, ± orbicular, biconvex, 1.5–2 mm diam. Wet soil, marshes, and stream margins, 200–1520 m. Flowers September to January.

The epithet "*capensis*" traces back to *Renealmia capensis* Houttuyn (1777). Houttuyn's work was discussed extensively by Merrill (1938), who wrote (p. 310), "All attempts to locate a Houttuyn herbarium have failed, and the probability is that most of his actual types are no longer extant." Marais and Verdoorn (1963) thus considered Houttuyn's illustration to be the type, but the floral details in that illustration are crude and inaccurate. In 1998, G. Thijsse (L) wrote me, "According to an unpublished mss. the main set of Houttuyn's herbarium is at Geneva. Also the holotype of *Renealmia capensis* is at G." The types of *Menyanthes ovata* L. f. (1782, not 1781 fide Manitz, 1976) and *M. capensis* Thunberg (1794) both are Thunberg collections. Photographs of these types and of the holotype of *R. capensis* in the Burman herbarium at G indicate that these three specimens are almost certainly duplicates of the same collection, and an additional Thunberg specimen in the Vahl Herbarium at C very likely is also from the same collection. Thunberg (1823) stated that *M. capensis* "crescit in Krum-rivier [= Krom River] et in summo Taffelberg." His specimens, however, are clearly not from Table Mountain (Taffelberg), since Table Mountain plants are uniformly smaller, and have elliptic or oblong rather than ovate leaves. The Thunberg specimens are larger, with inflorescences to 35 cm tall; these are 1.5–1.7 times the length of the longest leaves, which are ovate. They resemble plants collected at Kirby (*Fourcade 5901*, BOL), "Ralets" (= Ratels) Bosch flats (*Fourcade 396*, BOL), and Wagenbooms River, Long Kloof (*H. Bolus 2404*, BOL), all at the eastern end of the range of *V. capensis* (Fourcade, 1940). Krom River originates at the eastern end of the Tsitsikamma Mountains and empties into St. Francis Bay in the general region of the three collections cited above. Thunberg visited this area between September 1772 and early January 1773 and again between September 1773

and January 1774 (Karsten, 1939). The distribution of this larger form (to which the holotype of *V. capensis* belongs) is disjunct. It has been collected at the eastern end of the range of the species, but also in the Ceres area (*Guthrie 2191*, NBG, and *Compton 10090*, NBG, the latter with the comment that it "looks very different from the Table Mountain swamp-plant!") and the Badsberg (*Walters 1557*, BOL). The smaller, more widespread form also has been collected near the last locality in Bain's Kloof (*Schlechter 9174*, BOL; *Leighton 2153*, BOL; *Ornduff 7267*, UC). No taxonomic separation of these two forms is suggested at present.

Acknowledgments. I am indebted to Peter Goldblatt (MO) for his considerable assistance in carrying out this study and his comments on an earlier version of this paper, John Manning (NBG) for assistance in the field and for help in identifying field localities, Helen I. Aston (MEL) for helpful comments on an earlier draft of this paper, the staff of BOL and NBG for lending specimens, G. Thijsse (L) for assistance in locating the holotype of *R. capensis*, F. Jacquemoud (G) for providing a photograph of that holotype, and B. Hansen (C) for sending a photocopy of the Thunberg specimen in the Vahl Herbarium.

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